

Migrating to Linux Mint

— A Realistic Short Story —

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*Although this story is based on true events and refers to real names, it is nevertheless a work of fiction.
As such, the author cannot be held responsible for the accuracy of the content.
However, the story might still be useful for those who are on a similar path.
The reader must be able to envision the scenario in a fairly detailed manner.*

By now, Sybil is completely fed up with Windoze operating system. So, when she got a new laptop computer, she finally decided to try something else. Following the suggestion of her brother, Jack, she chose Linux Mint (LM), which seems friendly to users like her. Jack has been using Ubuntu (on which LM is based) on his old laptop but he became more or more interested in LM recently.

Windoze Initial Setup

Just to be safe, Sybil chose to set up Windoze/LM dual boot. First, Sybil still needed to minimally set up Windoze for her brand-new laptop. For this, she needed to create her online Windoze account. She didn't want to do this but didn't know how to skip it either (there seem to be ways, though). So, she reluctantly created a new account with her temporary email address. Ironically, this process turns out to save her later.

Once Windoze started, Sybil changed the laptop user account to "local," so that the laptop is no longer associated with the online account. However, she noticed that the account folder name did not change to her new local account name. What a nuisance! But as she will primarily use LM, she left it at that (again, there seem to be ways to fix this; but not as simple

as she wishes).

Any way, she did the following things on Windoze.

- Changed the computer name
- Chose the option to make no system sounds
- Changed a huge number of privacy settings
- Changed power, display, mouse, and some other settings
- Installed Firefox from a USB drive which contained the installation file downloaded on her old computer. During this process, she needed to get out of the Windoze' S mode, which prevented her from installing non-Windoze programs. She had to get a small program from the Windoze site to do this.
- Installed LibreOffice
- Changed the permissions and filenames of `wuauc1t.exe` and `wuaueng.dll` (in the `system32` folder). This should disable automatic updates.
- Changed the disk partition (right click on the start symbol) and shrank the C: drive and set aside about 150GB for LM, leaving about 100GB for Windoze.

Linux Mint Dual-Boot Installation

Now, Sybil is ready to proceed with the LM installation. For this, she primarily relied on the introductory documents on the LM site and also on the LM forum.

First, Sybil downloaded Linux Mint 20.3, ran integrity & authenticity checks (rather complicated for her), and created a bootable USB drive with Etcher. The process of starting LM from the USB stick was a little tricky for her. Several times, rather than LM, Windoze started. So, she paid extra attention to the procedure.

Right after starting the laptop, Sybil hit the F2 key repeatedly until the BIOS menu showed up. Using the menu, she changed the boot sequence so that the USB drive is read before Windoze. She applied this setting by choosing the "Exit and Save" option. This appeared slightly misleading to her. Because as she repeated the boot process several times, the boot sequence was never actually "saved." She needed to change that every time.

But eventually, Sybil was able to start LM from the USB drive. Then, using the icon on the desktop, she proceeded to install LM on the 150GB partition reserved for this purpose. She wasn't sure about certain things, e.g., "primary" vs. "logical" partition. She checked online and

chose “primary.”

Now, the laptop is configured for dual boot. Sybil tested that both Windoze and LM can be started depending on her choice.

Device Issue (Dell)

Before proceeding, we need to note one significant issue. Sybil’s laptop was a Dell Inspiron 15 (Model 3501, 15.6 FHD Touch Screen, Intel Core i3-1115G4, 8GB RAM, 256GB SSD, Windoze 10 Home in S mode). It was on sale and the least expensive among the ones that satisfied her requirements. But as she checked the functionality, she noticed that the headphones were not working with LM. They work fine with Windoze. And the use of headphones is essential for her.

So, Jack came over and checked various things and even tried to change system files using Terminal. Unfortunately, none worked. According to online information, all sorts of Dell computers have sound issues with Linux. She also read somewhere that Dell computers tend to differ from other manufacturers in terms of headphone connection detection. Dell seems to rely on software detection rather than hardware detection of plugging in. Since headphones work in Windoze, it seems that LM is not set up to handle the Dell situation.

By this time, Sybil decided to return the Dell and get a different laptop. So, she went online and investigated possible issues with LM. The next inexpensive non-Dell laptop in a local store was Lenovo. It did not seem to have headphone issues. However, during this time, she already found out that this Lenovo model was reported to have touch pad issues. Since Sybil uses mouse, this didn’t seem to be a big deal.

In no time, Sybil got a Lenovo IdeaPad 3 (15ITL6, 15.6 FHD Touch Screen, Intel Core i5-1135G7, 12GB RAM, 256GB SSD, Windoze 11 Home in S mode). She had to go through the same setup process once more. Note that she liked a few small things about the Lenovo. For example, the Lenovo has the NumLock light, which is actually very useful.

BitLocker Recovery

When Sybil was about to complete the LM installation, she probably removed the USB stick too early. When the laptop restarted, it went into a locked mode and required to enter the recovery key. Sybil was extremely upset. Not knowing what is actually happening, she had to read the message on the screen carefully. And unfortunately, she skipped the process of

creating the recover media during the Windoze setup process. That might have been helpful. But luckily there is another option. The recovery key must have been stored in her online Windoze account. So, she logged in to that account and voila! There actually was the needed recovery key. She was so relieved. Now, she had to enter dozens of numbers to unlock the laptop. Later, she once again encountered the locked screen. She was able to unlock it again but it was so tedious to enter so many numbers.

Any way, it turned out that the Windoze drive is encrypted with “BitLocker” and the modification of the boot sequence seems to have triggered the lock. She was afraid that this might happen again and again. But luckily these were the only two times she had to do this. By the way, this situation did not occur with the Dell. Sybil was not sure if it was because the Dell came with Windoze 10 or the manufacturers have different setting regarding BitLocker.

Device Issues (Lenovo)

As soon as completing the LM installation on her Lenovo, Sybil checked her headphones. They work beautifully. In addition, the sound from the speakers seems better on the Lenovo. She was relieved. At the same time, as she expected, touch pad does not work with LM (although it works with Windoze). By the way, she recalls that touch pad worked with LM on Dell.

There were a few additional device issues. Touch screen doesn't work with LM either. Again, it works with Windoze. The same for HDMI out. She was planning to use both of these. So, she was disappointed. Also, she cannot control the monitor's brightness. But she felt that the headphone issue is much more serious for her than all of these combined. When Jack investigated these issues, he noticed that none of touch pad, touch screen, or HDMI out were listed in the system report. So, he suspected that something fundamental is missing. He suggested that updating the Linux kernel might help. The kernel with LM 20.3 is 5.4, which is fairly old. This new laptop might be “too new” for this version of kernel. Using the LM update manager, updating the kernel does not seem to be a daunting task. Furthermore, the process is reversible. Nevertheless, he also said that it might be better to wait until a version of kernel with longer support time comes out (the newest kernel that appears in the LM update manager is to expire in several months).

There was one more issue. It was with the mouse middle button press. LM has a setting that emulates mouse middle button with pressing both the left and right buttons. So, this might be inherent to LM. When Jack tested. The middle button is certainly recognized. Jack said that this could be fixed in some way. But Sybil was not up to that yet.

Update (August 2022): Sybil finally updated the kernel from 5.4 to 5.15. Then, the issues with touchpad, touch screen, and HDMI output all resolved.

Network Setup

To share files (e.g., photos and music) stored on removable media connected to Sybil's old computer, her family uses a home network. So, the next step was to connect her new laptop to this network and share files. This process was done mostly by Jack. He first installed "Samba." For this, he used Terminal and entered some commands. Since Jack already uses Ubuntu, it was not that hard for him. However, Sybil has never done such a thing. So, without Jack, she must have faced some challenges.

Then, Jack created a folder and made that folder to be shared with other computers. Then, he was able to access this folder from a Windows machine using Sybil's account information for the new laptop. Jack was also able to access shared Windows folders from the new laptop using Sybil's account information of her old Windows machine.

However, there were some possible issues. Occasionally, connections from Windows to LM drops, especially after, say, an access problem. Also, there are times when Sybil cannot access certain Windows files/folders. Most of the time, she regains access after, say, a few minutes. This may or may not be because what Jack did was bare minimal and he did not do all the necessary steps for setting up the network in the standard way. But this is not a major issue for now and will be left for future.

Linux Mint Customization

After the network setup, Sybil proceeded to customize her LM working environment.

- Set up Update Manager and applied all the updates
- Adjusted various System Settings
- Added the Japanese language and the associated input method. Fcitx and then Mozc (needed to uncheck a box to view this option), changed input mode shift to **Ctrl+J**,
- Customized panel area: logo, world time, battery, weather (two applets, one for Fahrenheit and the other for Celsius), favorite, recent files, timer, etc.
- Customized desktop: added analog clock and sound box (to display the volume level at all times)
- Set up work space and hot corner. She set up three hot corners to go to three work spaces directly by assigning commands, such as `wmctrl -s 1` (for work space 1).
- Started Note and set up the preferences

- Installed additional battery monitor (BAMS). After testing the battery performance, Sybil realized that the battery life of this laptop is not so great. Probably, more like two hours with light use. This might be because of the back light level, which seems brightest and cannot be changed. The charging time seems around two hours.
- Installed Flame shot (screenshot) and added to the panel

Sybil found that the Cinnamon Menu is quite useful. However, its customization using Cinnamon Menu Editor was rather tricky. When she tried to re-arrange entries, a lot of duplicate entries were created. Although the redundant entries can be unchecked, the menu editor became terribly cluttered.

After some time tweaking, Sybil got the idea. First, the main and an additional folders for the items were found in `/usr/share/applications` and `~/.local/share/applications`, respectively. All the redundant entries had been created in the second folder with the name starting with `alacarte-`. So, she removed them. Next, when she wants to move an entry, she used `cut` and `paste`, rather than `copy` and `paste`. Even after this, the original entry still remains, which needs to be unchecked. But no additional files were created.

In some cases, Sybil manually created new items and filled the fields by copying and pasting the information from another item. Eventually, she was able to re-arrange the menu as she wanted.

Then, Sybil started to customize the Files app. She changed the default to “list view” and “tree,” bookmarked certain folders (e.g., remote folders), and designated certain files as “favorite.” While doing this, she felt that the fonts are too small. The laptop has full HD (FHD) resolution (1920 x 1080) on a 15.6-inch display. This makes the display very sharp but the texts and images can appear very small. Probably to compensate this, Windows by default magnify the display by 125%. So, Sybil changed the LM default Text scaling factor from 1.0 to 1.1.

While customizing Files, Sybil unchecked Nemo plugin options without thinking much. Then, the Samba share information disappeared from Files. After realizing this, she re-enabled Nemo Share option.

Although Sybil was able to use remote folders by accessing the bookmarks, these folders are not automatically mounted at login. For this, she installed an application called Gigolo, bookmarked remote folders within this app (in addition to within the Files app), and selected automatic connection for those folders.

After using LM for some time, Sybil realized that a process called “Caribou” was consuming a lot of memory (hundreds of MB). At first, she even didn’t know what it is. It turned out to be for on-screen keyboard. Since she doesn’t use it, she wanted to turn it off. After reading some online discussion, she even considered uninstalling it. However, she was eventually able to

disable it from the accessibility options.

There is one more thing Sybil wants to do. She wants LM to go into the lock mode at night. It is possible to lock after up to one hour when the screen saver starts. But that's not what she wants. She tried to add `cinnamon-screensaver-command -lock` at the end of the crontab file. However, this does not seem to work. So, this remains a future task.

Firefox and Thunderbird

Both Firefox and Thunderbird are pre-installed with LM. Still, there were certain things Sybil needed to do. She Set up Firefox, added the menu bar (right click near the top), added uBlock add-on (ad blocker), customized the tool bar, and imported bookmarks (using “restore”) from her old computer. She set up Thunderbird with her email account, copied local folders from her old computer, and installed “mailbox alert” add-on (to set up different notification behaviors for different folders).

As in the case of Files program, the font size of Firefox and Thunderbird seems too small. Sybil changed the font size for Firefox as follows:

- To adjust the menu and bar font size: In the address field, entered `about:config`. Identified the entry called `layout.css.devPixelsPerPx`. Changed the value from -1.0 to 1.15.
- To adjust the web site font size: In Setting/Fonts and Colors, clicked Advanced and set the font size for both Latin and Japanese as desired. This required some try and error.
- If necessary, further adjusted the zoom for each page/site for certain sites. She also chose zoom text only.

The procedure was slightly different for Thunderbird.

- To adjust the menu and bar font size: Clicked Preferences/General/Config Editor (at bottom). Identified the entry called `layout.css.devPixelsPerPx`. Changed the value from -1.0 to 1.6.
- Adjusted the message font size: In Preferences/Fonts & Colors, click Advanced and set the font size for both Latin and Japanese as desire, as well as zooming in/out
- Also changed folder density to “normal.” Without this, message listing appears too tight for her.

Occasionally, Sybil noticed that Firefox bookmark drag and drop stops working. If this

happens, she needs to restarted Firefox.

Organizer and Android Phone Connection

On Windoze, Sybil was using a personal organizer called Essential PIM Free. On Ubuntu, Jack was using an organizer called KOrganizer. Initially, Sybil thought she might also use KOrganizer. But she found out that it is no longer available. So, she first tried Thunderbird calendar and tasks. She imported and adjusted all the calendar and task entries to Thunderbird. However, the next day, she found out that all the entries were gone.

Frustrated, Sybil installed and started to try Evolution. It turned out to be quite appropriate for her needs. It has the capability of importing events and tasks in the .ics format. It can also export calendar events (but not tasks).

For now, Sybil manually backs up the Evolution data, saves the calendar events in the .ics file, copies it (along with some other files) to her phone via USB, every week. The LM Files program did not let her overwrite the files on her phone. So, she had to delete old files first and copy new ones.

LibreOffice

Sybil has been using LibreOffice on her old computer for many years. And this office suite is pre-installed in LM. So, it was fairly straightforward to use these programs. Still, she wanted customized the programs.

- Needed more fonts. So, she first installed Font Manager and imported fonts from her old computer and also using Software Manager. After this, she unchecked unnecessary fonts so that her font choice in LibreOffice is not overwhelming.
- Customized LibreWriter: preferences, format symbols, and toolbars. In particular, she needed to create a new toolbar so that it is automatically shown at start up.
- Modified LibreOffice auto correct options. Some of them are annoying.
- Changed LibreCalc's Return key behavior to “move right” in Preferences

Backup Procedure

On her old computer, Sybil was using SyncBack Free to back up her and her family's files. As she keeps her old computer to do the job, there is only a small amount of additional work with respect to backing up with respect to the new laptop. She first installed luckyBackup and Unison. For some reason, neither seem to work.

So, with the help of Jack, she created a cron job to copy Firefox bookmarks and Thunderbird local files to the Share folder at night. This way those files are backed up to the backup drives connected to her old computer. Editing the crontab file was fairly easy using the “nano” editor. In Terminal, she entered `crontab -e`, edited it, and saved the file. The menu at the bottom of the editor was helpful. Here is section she added at the end of the crontab file.

```
# copy Firefox bookmarks 2/9/22
00 01 * * * rsync -avh
~/mozilla/firefox/abcd123e.default-release/bookmarkbackups/bookmarks*
~/Desktop/Share/Firefox-bookmarkbackups >> ~/.crontab_log.txt

# copy Thunderbird local mail messages 2/9/22
01 01 * * * rsync -avh ~/.thunderbird/albcde2f.default-release/Mail/'Local
Folders'/Old.sbd/* ~/Desktop/Share/Thunderbird-localmail >> ~/.crontab_log.txt
10 01 * * * chmod ga+r ~/Desktop/Share/Thunderbird-localmail/* #needed for access
```

Sound Control

After realizing the usefulness of cron jobs, Sybil tried to control the sound in a similar manner. She wanted to silence the laptop at night. She searched online and added the following commands at the end of the crontab file.

```
# nightly volume control
00 22 * * * amixer --card 1 set Speaker 0 # turn off USB audio (speakers)
00 05 * * * amixer --card 1 set Speaker 11 unmute # set USB audio to 33%
00 05 * * * amixer set Master playback 100% unmute # default: --card 0
00 05 * * * amixer set Headphone 63 unmute # Headphone Jack 50%
00 05 * * * amixer set Speaker 77 unmute # Built-in speaker 75% (WORKING?)
```

Sybil does not really understand what exactly these commands do. And the above code may not be working 100% right. But for now, this still seems useful.

Then, Sybil hooked up external speakers through a USB adapter. Now, she wanted to switch these speakers and headphones (always connected) from panel icons. Again, searching online and a lot of try and error, she created the following two script files.

(1) `sound_to_usb.sh`

```
#!/bin/bash
pactl set-card-profile 1 off
pactl set-card-profile 0 output:analog-stereo
amixer --card 1 set Speaker 11 unmute # USB audio 33%
```

(2) `sound_to_headphone.sh`

```
#!/bin/bash
pactl set-card-profile 0 off
pactl set-card-profile 1 HiFi
pactl set-sink-port 1 Headphones
amixer set Master playback 100% unmute # default: --card 0
amixer set Headphone 63 unmute # Headphone Jack 50%
```

Then, Sybil added two instances of Command Launcher applets on the panel and assigned command such as `bash ~/Desktop/Share/Tools/sound_to_headphone.sh`. The above setup seems to work sometimes, but not all the time. For example, it worked after cinnamon restart (**Ctrl+Alt+Esc**, more about this later). Sometimes, she needed to change setting using the “Sound” app before being able to use her panel buttons. Certainly, she needs to explore more about this.

Other Apps

Next, Sybil checked some pre-installed apps and installed some more.

- Tested music and mp4 video with Celluloid; Also installed VLC
- Installed Evince (for PDF viewing) and made it default. This seems better than the other PDF viewer.
- Installed PDF Arranger
- Installed dconf-editor to fine-tune LM. Sybil found that this is not so useful for her.
- Installed FreeFileSync and started to set up scheduled backup with the app. This is more complicated and still working.
- Tested printing. Installed Canon printer driver. Now, there are two icons for the Canon printer. Sybil tried to delete the one that was set up automatically, but she couldn't.
- Installed Canon scanner driver. This lets Sybil control the scanner from her laptop. However, she still cannot send scanned documents/images to her laptop from within the scanner's touch screen.
- Installed KRename (for bulk renaming). It took a while to get used to.

- Installed and tested Musescore (for music score creation)
- Installed Audacity (for audio file editing). However, it was version 2.4.4, which would create a huge number of data files. So, she updated it to 3.0.2. Versions after this are said to have privacy issues.
- Installed Kid3 (for mp3 tag editing)
- Installed LMMS (for MIDI processing)
- Installed Shotcut (for video editing). Also installed Snap to do this.

On her old computer, Sybil was using an image editor called PhotoFiltre Free. She initially tried to use Krita. However, she realized that Krita is more for graphic art creation than image editing. So, she eventually installed GIMP. Sybil thought that GIMP is not as user friendly as PhotoFiltre. However, she has to live with it. With GIMP, she has to “export” to (rather than save as) jpeg, but it should be all right.

As for web editing, her favorite program was legacy Dreamweaver. She tried to find a free Linux alternative. However, she couldn't. For example, Kompozer doesn't handle the php section very well. So, she practically gave up on the idea and settled for the option of using Filezilla and Bluefish. Using Filezilla was a little tricky. Sybil had to a lot of customization to make it work for her.

Remote Files

Although Sybil was able to use remote files fairly successfully, there were certain limitations. First, the default setting for remote folders in Files are different from local folders. For example, no thumbnails are shown for remote files. But she realized that this can be changed in Preferences.

Also, there seem to be differences among apps. For example, Shortcut doesn't let the user drag and drop files from a remote folder. It does not start by clicking a remote file either. Musescore too doesn't let the user drag and drop files from a remote folder. However, it can start by clicking a remote file. As for Musescore, she is not sure if modified scores can be saved to a remote folder. Also with Kid3, she was unable to save any changes to remote files. So, in some cases, Sybil needed to copy files to a local folder, work there, and move them back to the original location.

But after some time, Sybil found a way to access remote folders directly within “File System.” For example, she was able to access a remote folder as, `/run/user/1000/gvfs/smb-share:server=server1,share=folder2,user=user3`. This should be useful when an application does not show mounted drives in its file manager. She was able to access a

remote file even in Shotcut.

Accessing the Other Partition

Although Sybil will be using LM almost exclusively, there might be times when she uses Windoze and also wants to access the LM partition. Considering this possibility, she installed DiskInternals' Linux Reader (for Windoze). Now, she can access LM files (read-only).

There also is the reverse direction. This was supposedly automatic. The Windoze partition should be available in LM. However, due to the BitLocker situation, the drive appears encrypted and cannot be accessed. One way to deal with it would be to access the drive by providing the recovery key within the process. This seems unnecessarily complicated.

Sybil's approach was simply to turn off BitLocker drive encryption. After that, the Windoze drive automatically showed up in Files and is available for read/write.

Vanishing Disk Space

One day, Sybil noticed that available disk space had been greatly reduced. She first stopped using Timeshift. This helped but not resolved the issue. After spending a lot of time, she found the cause. The file `~/ .xsession-error` was taking up excessive space. Even after emptying the file, it rapidly grew in size. So, she added to the crontab file `55 * * * * >~/ .xsession-errors`. This solved the issue.

Everything Else

One odd thing about this laptop is its weirdly shaped AC adapter. Depending on an outlet, it might not fit properly. So, Sybil added a very short extension cord so that it can be plugged in to any outlet.

One application Sybil tried to use but still unable to do is power control device/program called ISY. She eventually found that the problem is the security protection during Java startup. After finding a solution online, she added to the command the "nosecurity" option as follows:

```
javaws --nosecurity "https://isy.universal-devices.com/launcher/isy.jnlp
```

The app is now working.

One program which Sybil wanted to use but also appears hopeless is Garmin Express. They have no intention of creating Linux programs. Some people tried to use it in Wine (Windows emulator). But they seem to have faced considerable challenges.

One final thought was about the stability of LM on her laptop. At first, Sybil thought that it was not as good as she initially hoped. She “thought” it froze/crashed several times during the first few days. However, as she learned more about LM, she came to think that those were not necessarily crashes. For example, she thought that Shotcut crashed. However, it was simply because a dialog window was hidden behind the main Shotcut window. She couldn’t use any of the main window features until she handled the dialog window. Her earlier experience with Shotcut issue might have been like that.

Gradually, Sybil learned to fix issues with minimal intervention. For example, when the mouse pointer disappeared, she just unplugged and re-inserted the mouse. The mouse pointer re-appeared. Another time, Gigolo appeared to freeze. This time, Sybil used Cinnamon restart (**Ctrl+Alt+Esc**). This fixed the issue. In fact, a lot of issues can be resolved with Cinnamon restart. This is good because all the current working environment is kept as is. If this doesn’t work, Sybil can log out and in (**Ctrl+Alt+Del**). She will lose the current session, but this is still faster than restarting the laptop. After learning these, she didn’t have to even log out of the session. So, she thinks that LM is sufficiently stable.

By now, Sybil is hooked with LM. If she gets another computer, she will surely use LM or another variant of Linux. She knows that she will never go back. That’s all for now. Sybil will surely encounter more problems and learn from them. We may (or may not) update this story.

Update (1/1/23)

1. **Audio outputs:** Sybil wanted to hear email notification (Thunderbird) from a speaker regardless of the music output (headphones or speakers). She got a junk speaker and decided to use it for email notification. This speaker is now connected to the USB audio output. Her headphones and audio system are connected to the headphone jack via a newly acquired 4-channel headphone amp. Then, using Pavucontrol, Sybil directed (1) email notification and other system sounds to the USB audio and (2) music (the output of sound apps) to the headphones jack.
2. **Dual monitor:** After the HDMI port became available, Sybil added an old VGA monitor to the port (via an HDMI-VGA adapter). Then, she learned that the touch screen position became inaccurate. It appears as if the touch position is calculated based on the area covered by the two monitors. Luckily, she was able to find useful information online (<https://forums.linuxmint.com/viewtopic.php?t=333354>). First, she needed to identify the touch screen device ID (with `xinput`) and the laptop monitor ID

(with `xrandr`). Then, she ran a command `xinput map-to-output 10 eDP-1`. In addition, she also added the command to the list of startup apps.

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